

TRAINING GUIDE FOR SCIENTIFIC AND ENGINEERING TRAINEES
1984(U) ELECTRONIC SYSTEMS DIV HANSCOM AFB MA JUN 84
ESD-TR-84-184

UNCLASSIFIED

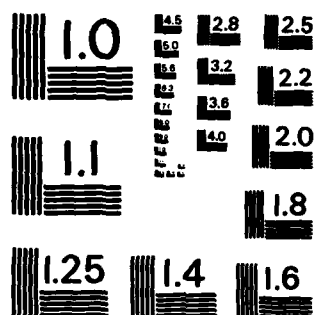
F/G 5/9

NL

8

END

FILM



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

ESD-TR-84-184

TRAINING GUIDE FOR SCIENTIFIC AND
ENGINEERING TRAINEES 1984



JUNE 1984

AD-A147 963

APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED

DTIC FILE COPY

DTIC
ELECTE
NOV 16 1984
S D

Prepared for

ELECTRONIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
DEPUTY FOR ACQUISITION LOGISTICS
AND TECHNICAL OPERATIONS
HANSCOM AIR FORCE BASE, MASSACHUSETTS 01731

84 11 05 078

LEGAL NOTICE

When U.S. Government drawings, specifications or other data are used for any purpose other than a definitely related government procurement operation, the government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

OTHER NOTICES

Do not return this copy. Retain or destroy.

Prepared By:

Martin L. Shapiro

Martin L. Shapiro, ALEO
Engineering Resource Manager
Resource Management Office
Directorate of Engineering
and Test

Approved By:

Eugene C. Kalkman

Eugene C. Kalkman
Chief Engineer and Assistant Deputy
for Technical Operations
Deputy for Acquisition Logistics
and Technical Operations

Approved By:

Oliver F. Nunes Jr.

Oliver F. Nunes, Jr.
Civilian Personnel Officer

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

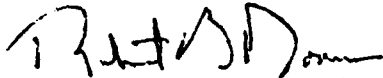
1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; Distribution unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ESD-TR-84-184			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Electronic Systems Division		6b. OFFICE SYMBOL (If applicable) ALEO		7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State and ZIP Code) Hanscom AFB Massachusetts 01731		7b. ADDRESS (City, State and ZIP Code)			
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		8b. OFFICE SYMBOL (If applicable)		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State and ZIP Code)		10. SOURCE OF FUNDING NOS.			
		PROGRAM ELEMENT NO.		PROJECT NO.	TASK NO.
					WORK UNIT NO.
11. TITLE (Include Security Classification) (U) Training Guide for Scientific and Engineering Trainees 1984					
12. PERSONAL AUTHOR(S)					
13a. TYPE OF REPORT In-house		13b. TIME COVERED FROM _____ TO _____		14. DATE OF REPORT (Yr., Mo., Day) 1984 June	
				15. PAGE COUNT 28	
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB. GR.	System Program Management, Task Descriptions, and Skill Levels.		
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>This Training Guide is to provide a unique opportunity to selected graduate engineers, mathematicians, and computer scientists to acquire applicable knowledge and experience in technical management with the guidance of the ESD Scientific and Engineering Career Panel.</p> <p>It is to provide trainees with an effective and meaningful entry into a technical management career. <i>One of the goals is to provide a career path.</i></p>					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS <input type="checkbox"/>			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Patrick L. Hathaway, SSgt, USAF			22b. TELEPHONE NUMBER (Include Area Code) (617) 861-2701		22c. OFFICE SYMBOL ESD/ALEO

Foreword

This Training Guide is dedicated to the continued excellence of the Electronic Systems Division's technical work force. This excellence has been achieved by hard work, education, good management techniques and the intelligent application of Air Force regulations.

This Training Guide has been prepared to insure that this excellence is continued by providing a unique opportunity to selected graduate engineers, mathematicians, and computer scientists to acquire applicable knowledge and experience in technical management with the guidance of the ESD Scientific and Engineering Career Panel. This panel has been established to enhance the training process by providing a variety of rotating assignments for trainees in addition to individual career advisors for each and every trainee.

The intent of the Scientific and Engineering Training Program is to provide trainees with an effective and meaningful entry into a technical management career. During the training period, trainees are required to move from position to position to gain the broad experience that is needed for effective management. At the end of their training program, participants should feel that this period has been a vital part of their professional careers. From this positive and beneficial program, the Electronic Systems Division expects to retain effective project/program managers for long productive careers.



ROBERT B. DOANE
Deputy for Acquisition Logistics
and Technical Operations

Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A/1	



TABLE OF CONTENTS

	<u>PAGE</u>
I. Introduction	1
II. Implementation Concept	1
III. Scientific and Engineering Career Panel	1
IV. Objective	1
V. Scope	1
VI. Recruiting Quota and Assignment System	2
VII. Evaluation	3
VIII. Responsibilities	3
IX. Record Maintenance	5
X. Training Program Plan	5
Appendix A: Training Program Plan	7
Appendix B: Task Descriptions	11
Appendix C: Academic Studies	15
Appendix D: Skill Level for Promotion	17
Appendix E: Promotion Procedure	21

I INTRODUCTION: The purpose of the Scientific and Engineering Training Program is to develop future project/program managers for the Electronic Systems Division. The objective of the program is to provide a comprehensive academic and on-the-job training program in United States Air Force (USAF) system acquisition practices and procedures. This training program has been designed to accomplish this objective and:

A. Provide an effective and rewarding introduction to a project/program management career at ESD.

B. Provide training to employees who are capable of progressively assuming greater management responsibilities.

C. Provide a work force with the diverse knowledge and background experience needed to accomplish ESD's assigned missions.

II IMPLEMENTATION CONCEPT: The program is for trainees who are selected by ESD from an appropriate Office of Personnel Management (OPM) Register or ESD's recruitment efforts. Trainee candidate selection and hiring is accomplished by the recruiting committee appointed by the Chief Engineer and the Civilian Personnel Officer. The entrance level for recent graduates will be at GS-5 or the GS-7 level in accordance with OPM Handbook X-118, Qualification Standards. The entrance level for personnel with one year or more of applicable experience will be determined on a case by case basis.

III SCIENTIFIC AND ENGINEERING CAREER PANEL:

A. The Scientific and Engineering Career Panel that controls the training program, consists of seven (7) members representing a cross section of the ESD scientific and engineering work force and the Civilian Personnel Office.

B. All appointments, including the selection of the chairperson, will be made by the ESD Chief Engineer and the Civilian Personnel Officer.

C. Full panel participation in all actions is desirable but not mandatory. No panel action will be taken without the presence of two members and the chairperson or their delegated representatives.

IV OBJECTIVE: This training program is designed to provide scientific and engineering trainees with a planned sequence of progressive experience/assignments to perform a variety of management functions encountered in the system acquisition mission of ESD.

V SCOPE: Positions covered include the following: career fields GS-801 Systems Engineer, GS-830 Mechanical Engineer, GS-855 Electronics Engineer, GS-861 Aerospace Engineer, GS-896 Industrial Engineer, GS-1515 Operations Research Analyst, and GS-1550 Computer Scientist.

Grade Progression: GS-5, GS-7, GS-9, GS-11, GS-12. Trainees are promoted on a non-competitive basis in 3 or 4 promotions. Advancement beyond GS-12 is competitive and is governed by MERIT PROMOTION PROCEDURES.

Training Phases: Each phase is identified by a GS-grade level (see Appendix D) and must be satisfactorily completed before the trainee qualifies for advancement to the next grade level. Advancement from one level to the next higher level will normally take 12 months. (See Appendix E, Promotion Procedures) The Scientific and Engineering Career Panel will periodically review trainee progress for advancement, for continuation of specific assignments, and for termination of training or for termination of employment within the first 3 years.

The sequence of planned training may be altered by a trainee's supervisor to permit responsiveness to actual work situations as they arise, but must be documented by the supervisor, reviewed by the career advisor, and approved by the Scientific and Engineering Career Panel. If the altered plans are considered to be detrimental to the trainee's career, the panel will move the trainee to another position.

VI RECRUITING QUOTA & ASSIGNMENT SYSTEM:

A. Quota:

1. Considering the projected analysis of ESD's needs, the Scientific and Engineering Career Panel will develop a recommendation for the annual numbers and career fields of trainees to be hired and will submit this recommendation to the Civilian Personnel Officer (ESD/DPC). The exact number of trainees to be hired will be directed by ESD's Chief of Staff.

2. Selection: Members of the Scientific and Engineering Career Panel will support Civilian Personnel Staffing (ESD/DPCS) in the recruiting, interviewing, and selection of candidates either directly or by delegation of authority to selected individuals.

B. Assignment:

1. Trainees will be assigned to selected Program Offices or staff elements that have been determined to offer suitable training assignments.

2. Trainees will rotate annually to program offices and selected staff elements of ESD. In a three year period each trainee will be assigned to three different two letter deputates, emphasizing three different technologies and three different phases of the acquisition cycle whenever possible.

3. Assignments to permanent positions will be made upon completion of the training program.

4. The training program will be completed concurrently with the trainee's promotion to GS-12. The trainee will continue training courses started prior to that date and will be given a three month grace period during which he/she may request an additional change of permanent position via his/her career advisor and the Scientific and Engineering Career Panel.

VII EVALUATION:

A. Periodic Evaluation: Progress training evaluations (AFSC Form 164 front section) will be completed by the trainee's immediate supervisor who will review the reports with the trainee. The reports will be completed quarterly during the trainee's first year and semi-annually thereafter.

B. Final Evaluation: The final training evaluation of the trainee (AFSC Form 164 back section) will be completed by the trainee's supervisor and reviewed with the trainee.

C. Promotion Evaluation: Promotion evaluations will be conducted in conjunction with the supervisor, the Scientific and Engineering Career Panel, and trainees. Information meetings coupled with panel reviews of required documentation forms will be used whenever possible. Promotion recommendations will be made by supervisors. Promotion decisions will be made by the Scientific and Engineering Career Panel.

D. Communications and Feedback: Each trainee will meet at least quarterly, on an informal basis, with his/her career advisor to discuss his/her progress and any concerns. Both problems identified and recommendations will be reported to the chairperson of the Scientific and Engineering Career Panel. Trainees and their advisors will meet to discuss and resolve problems, as well as to assure continuous training progress. Trainee inputs relative to adequacy of the training program will be solicited by the panel and reviewed also.

VIII RESPONSIBILITIES:

A. Scientific and Engineering Career Panel:

1. Supports Civilian Personnel Staffing (ESD/DPCS) in the recruiting, interviewing, and selection of trainees. Assigns trainees to entry level and rotational assignments.

2. Provides guidance to supervisors and counsels trainees.

3. Assigns individual career advisors.

4. Makes recommendations to improve the Scientific and Engineering Career Program. Reviews program with trainees periodically.

5. Effects rotational assignment of trainees through consultation with all parties concerned.

6. Periodically evaluates and validates training requirements and makes necessary changes to the Training Guide.

7. Works with supervisors to determine the promotion potential of the trainees.

8. Manages the Scientific and Engineering Training Program.

B. Career Advisor:

Each career advisor will work closely with his/her assigned trainees to advise them on current training/career development matters, or problems that may arise. The career advisor assists the trainee and the supervisor in preparing the trainee's Individual Development Plan, AFSC Form 153. The career advisor is assigned by the Scientific and Engineering Career Panel and is continually available to the trainee for consultation.

C. Civilian Personnel Staffing Office:

1. Makes employment offers and hires trainees identified by the recruiting committee.

2. Provides general orientation for new trainees.

3. Assists in developing, implementing, and evaluating the training program.

D. Civilian Training Office

1. Assists in locating training sources and obtaining approvals for trainee's attendance.

2. Coordinates government and non-government training.

3. Provides administrative support and coordination.

4. Maintains assignment and training records.

5. Provides consultants to the Scientific and Engineering Career Panel when requested.

E. First Level Supervisors:

1. In coordination with the trainee's career advisor and the trainee, prepare the Individual Development Plan with a detailed work plan for each year (Job Performance Appraisal System/JPAS) and supplement it with any special training requirements of the organization to which the trainee is assigned.

2. Maintain overall supervision of the trainee and document the individual's progress in the training program in accordance with the trainee's approved Individual Development Plan.

3. Maintain personnel records of trainee as required by established personnel procedures.

4. Evaluate trainee's performance via the Civilian Potential Appraisal System (CPAS) and by submittal of AFSC Form 164 progress reports to the Scientific and Engineering Career Panel quarterly during the trainee's first year and every six months thereafter.

5. Meet with the trainee's career advisor as needed for trainee/program information exchanges.

6. Submit trainee promotion recommendations to ESD/AL at least 45 days prior to the end of each training period using AFSC Form 164.

7. Meet with the trainee promotion panel, if needed.

F. Directorate of Engineering and Test (ALE):

1. Provides guidance and counseling to trainees.

2. Transfers trainees to new assignments.

3. Approves priority training for trainees.

G. ESD Chief Engineer:

1. Provides overall guidance and direction to the program.

2. Appoints all members of the Scientific and Engineering Career Panel.

3. Chairs the Scientific and Engineering Career Panel.

IX RECORD MAINTENANCE:

A. The Employee & Career Development Section (ABGp/DECT) will maintain formal training records for each trainee.

B. The immediate supervisor will maintain detailed training and performance information on AF Form 971 to indicate all special training, evaluations, counseling, etc., performed and AFSC Form 164 will be completed, for trainee evaluation at the end of each evaluation period. The supervisor's records will be available to the trainee's career advisor and to the Scientific and Engineering Career Panel.

X TRAINING PROGRAM PLAN:

The training program plan is described in Appendix A. It shall be used as a basis for preparing Individual Development Plans. Program contents may be adjusted to suit each trainee's background/experience. Changes in planned training will be considered and authorized in order to

take advantage of special training opportunities and work situations as they develop. However, the Individual Development Plan should be followed as closely as possible. Appendix B lists and defines typical task assignments that may be experienced by ESD's trainees. Appendix D lists the skills to be acquired by the trainees prior to promotion to GS-7, GS-9, GS-11, and GS-12 positions.

Appendix A
TRAINING PROGRAM PLAN FOR
SCIENTIFIC AND ENGINEERING TRAINEES

A. General:

The following is the basic training program plan for all ESD scientific and engineering trainees. It covers the period between entry at a GS-5 or GS-7 level to program completion as a fully qualified Project Manager serving at the GS-12 level. Training takes many forms, including:

1. Classroom Instruction
2. On-the-job Instruction
3. Rotational Assignments

B. Classroom Instruction:

1. Training is required for each individual to understand the specific policies, procedures and practices followed by ESD organizations in carrying out their missions, especially relationships with other organizations within Air Force and DOD. They should also understand other technical and management specialties which support project engineering functions.

2. Formal training in the SPO Management will consist of courses as follows:

a. System Program Management: Two courses in System Program Management will be conducted. One course, Introduction to Acquisition Management (AFIT SYS 100) has been produced by the USAF Institute of Technology (AFIT) as an introductory course to acquisition management for personnel new to Air Force Systems Command. It is presented at ESD. This course provides a comprehensive overview of the management process by which USAF systems are acquired and the relationship of this process to the program office. The other course is the ESD Systems Acquisition Orientation Course (SAOC). It is presented by ESD personnel and places emphasis on SPO management procedures that are best suited to ESD operations. These are mandatory courses and are normally presented sequentially.

b. Additional courses to expand working knowledge of technical disciplines and functional areas introduced in the AFIT management course should be taken by the trainees. These courses will be given on base, at AFIT, at the Office of Personnel Management, New England

Regional Training Center and a few other government institutions. Courses will be identified by the trainee with the career advisor and will be reviewed for approval by the functional area manager.

c. University Courses and Seminars: Trainees are expected to attend university courses and ESD technical seminars. The specific courses or seminars are to be jointly selected by the trainee and his/her career advisor. Courses may be technical or managerial, conducted during business or non-business hours. However, the trainee is urged to take applicable courses, during off-duty time, to accelerate his/her professional growth. Many university courses are offered on Hanscom Air Force Base and many others are available at local colleges and universities.

d. Task Assignments: During the training program, trainees will participate in a variety of tasks required of technical managers at ESD. Trainees will participate in these tasks in varying depth and detail throughout the program. Sample tasks are listed below and described in greater detail in Appendix B.

1. Engineering or technical studies or analyses.
2. Program planning discussions with higher headquarters, using commands, supporting commands and technical organizations. Discussions encompass all forms of deliberations and negotiations, oral and written, involved in accomplishing joint agreements on various aspects of a program.
3. Cost studies.
4. Site survey activities.
5. Preparation of specifications, statements of work, and other request for proposal information.
6. Source selection evaluations.
7. Technical reviews at contractor plants.
8. Contractor progress reviews.
9. Test planning.
10. Installation assembly and checkout activities.
11. Tests at contractor plants and at operational locations.
12. Mission analyses.
13. Letters of Offer and Acceptance.

e. Summary: The objective of this training program is to produce scientists and engineers who are thoroughly knowledgeable in all facets of ESD acquisition procedures to permit them to perform in an independent and completely capable fashion at a project/program manager level. The training program to accomplish this objective can be adjusted to meet the changing management environment, the changing details of specific programs, and the differing requirements of specific individuals.

Appendix B
TASK DESCRIPTIONS

A. Technical Studies: At various times during the course of a program, technical studies or analyses are conducted. This occurs primarily in the early phases of the program when key performance or specification parameters are being determined, during the design and development phase when technical problems become apparent, and when test results are being analyzed.

B. Planning Sessions with Higher Headquarters: In the preliminary and early stages of a program and at intermittent intervals during a program, it is necessary to engage in planning discussions at Hq AFSC and Hq USAF. The program director is responsible for such discussion and the key individual involved is usually the project engineer or project manager on the program.

C. Planning Sessions with Using Commands: During various stages of a program it is necessary to engage in meetings with a particular using command, such as the Strategic Air Command or the Tactical Air Command.

D. Planning Sessions with Supporting Commands: During all stages of a program, from its initial studies to final turnover to the operators, it is necessary for project engineers/managers to engage in meetings with the supporting commands such as the Logistics Command and Air Training Command. The purpose of these meetings is to assure that the supporting commands are fully involved in the program, that their responsibilities have been identified, defined and scheduled, that progress is adequate, and that their requirements for knowledge of the program are satisfied.

E. Sessions with Associated Technical Organizations: Nearly all ESD Programs require active support from one or more technical organizations within or connected with AFSC or within the DOD. A fully qualified project engineer/manager must be able to lead discussions with such organizations to arrange the scope of their participation, to deliberate the technical and managerial aspects of the program with them, and to incorporate the results of their contributions into the program.

F. Cost Studies: All ESD program offices must conduct cost studies on entire programs or limited parts of programs. Many of these are conducted at the outset of a program and frequently occur at all stages of a program. Total program costs, funding requirements by fiscal year, partial program costs, all are illustrations of cost studies conducted during a program.

G. Site Surveys: Site surveys are required in the early stages of those ESD programs that require installation of equipment and systems in particular geographic locations. The conduct of these surveys is basically the responsibility of a civil engineering organization supporting the program. However, participation of a technical manager is required.

H. Preparation of Specifications, Statements of Work and Related Documents: Some of the primary technical tasks in all ESD programs are the preparation of Specifications, Statements of Work and other documents included as part of a procurement package to be released to industry for proposals, source selection and contract.

I. Source Selection Evaluations: During the initial stages of all ESD programs, a period of intense technical activity occurs during source selection when the technical proposals of the bidders or offerors are evaluated.

J. Technical Reviews at Contractor Plants: Key technical activities in a program are the technical reviews held at a contractor's plant. One of these is the preliminary design review, occurring shortly after the initiation of a full scale development contract, in which the basic designs are outlined by the contractor. Another is the critical design review occurring just prior to release for fabrication.

K. Contractor Progress Reviews: A periodic feature of ESD programs is the review of the contractor's progress at their plant or other facilities. A technical manager is expected to be an active participant and, in some cases, responsible for such reviews.

L. Test Planning: During the early phases of a program, the technical staff of a program office is required to accomplish the general test planning to demonstrate system or equipment performance to the government for contract compliance and also for the operator's assessment of the ability to meet the operational requirements. The tests generally occur in the later phases of contract. This planning is at a level higher than that performed by the contractor for his specific individual tests.

M. Installation, Assembly and Checkout Activities: During the later phases of a large number of ESD programs, it is necessary to supervise or monitor the installation of equipment at an operational or test facility. This requires the technical manager to observe and direct, or re-direct government personnel, as required, to insure that the installation is complete and ready to operate.

N. Conduct of Tests at Contractor's Plants: During a program it is necessary to witness tests in a contractor's plant. These tests are usually only part of the total test program but they are an important part since it is essential that only acceptable qualified equipment is delivered to a site for subsequent system testing.

O. Conduct of Tests in the Field at Operational Locations: In the final phases of a program it is necessary to participate in and witness tests of a complete system located at an operational or field test site. This frequently includes the final testing for AF acceptance, and testing to assess operational performance for the using organization.

P. Mission Analyses: Mission analyses are studies that include consideration of the full range of factors that influence the need for and design of electronic systems. Operational procedures, logistics, national policy, cost, personnel requirements, as well as engineering and technology considerations are all factors in such studies. These studies serve as foundations for later conceptual system studies and proposals for system designs to serve operational needs. These are conducted under ESD sponsorship and have participants from a wide variety of Air Force and other DOD organizations as well as limited industry organizations.

Q. Letters of Offer and Acceptance (LOA): An LOA is prepared in support of systems acquisitions intended for sale to a foreign country (Foreign Military Sales). The LOA is essentially U.S. Government proposal to furnish a specific system for a stated price and in accordance with a specific schedule to a foreign country. When signed by representatives of both governments, the LOA becomes an international agreement.

NOTE: Trainees are expected to participate in a variety of the above tasks but are not expected to participate in all of them.

Appendix C
ACADEMIC STUDIES

The following is a suggested list of applicable courses. These have been taken by and evaluated by ESD personnel. This list is to be used as a guide only. It is not the intention of this guide to restrict trainees to a fixed set of courses. Trainees are encouraged to take courses applicable to their work and the work of ESD. Additional course catalogs and guidance are provided at the Hanscom AFB Training Center, Building 1728.

Air Force Institute of Technology

- Reliability Course
- Maintainability Course
- Reliability Engineering
- System 100 Introduction to Systems Acquisition
- Configuration Management Workshop
- Principles of Contract Pricing
- Test and Evaluation Management

Office of Personnel Management

- Project Management
- Effective Briefing Techniques
- Introduction to Statistics
- Introductory FORTRAN Programming
- Middle Management Institute
- Middle Management Workshop
- Project Management
- Report Writing Workshop
- Additional Statistical Concepts
- Introduction to Computer Telecommunications
- Understanding and Managing Human Behavior

Western New England College

- Operations Research I
- Organizational Behavior
- Financial Accounting
- Engineering Administration
- Law Engineering Administration
- Calculus I
- Calculus II
- Engineering Economy
- Marketing Management
- Math Analysis for Management
- Electronics for Systems Management

Northeastern University

- Analysis of the Industrial Enterprise I
- Basic Computer System Technology
- Industrial Organizations
- Engineering Project Management
- Advanced Quality Course
- Reliability and Maintainability Assessment

Electronic Systems Division

- Systems Acquisition Orientation Course
- Effective Writing
- ESD Scheduling Course
- Computer Systems Acquisition
- Computer Resources Acquisition Seminar
- Introduction to FORTRAN
- Microprocessors
- Today's Risks in Software Development
- Radar Technology

IEEE Courses

- Radar Technology
- Microprocessors
- Optical Systems and Devices

Requests for specific courses must be made by trainees at least one month prior to the start of a fiscal quarter (1 Oct, 1 Jan, 1 Apr, 1 Jul) on a DD Form 1556.

Appendix D
SKILL LEVEL FOR PROMOTION TO GS-7

1. Prior to promotion, the trainee will be able to:
 - a. Perform assignments of limited scope and difficulty.
 - b. Make direct application of various rules, procedures and precedents applicable to their assignments in which relationships are clear and there is little question of the appropriate process to follow. In all assignments, sufficient relevant material is available and it is clearly applicable.
 - c. Show capability to apply standard SPO management practices.
 - d. Show some knowledge of work processes.
2. For example the trainee must perform with limited direction in:
 - a. Selecting standard practices and data to be applied to specific problems where precedents are applicable.
 - b. Recognizing situations which may require referral to others.
 - c. Planning work.
 - d. Searching for information which may bear on a problem.
 - e. Handling personal contacts primarily within ESI) organizations to obtain or give data.

SKILL LEVEL FOR PROMOTION TO GS-9

1. Prior to promotion, the trainee will be able to:
 - a. Perform a wide range of technical tasks under direct supervision.
 - b. Make determinations and apply judgment in the selection, interpretation, and application of relevant rules, standard procedures or precedents.
 - c. Know where to find and how to apply appropriate procedures to their assignments.
 - d. Make minor adaptations of applicable documents to tailor them to particular assignments.
 - e. Perform blocks of work which may be either complete in themselves or segments of much broader projects.
2. For example, the trainee will be able to assist in the following:
 - a. Determine requirements for special test equipment.
 - b. Evaluate contractor's requests for design deviations for overall compatibility and cost implications, and recommend disposition of the requests.
 - c. Advise on use of standard and commercial parts or substitution of parts in the production stage.
 - d. Witness factory tests of initial production models or other critical tests and report findings to supervisor with recommendations for modifications or retesting, if judged necessary.
 - e. Evaluate user proposed design changes whose effects are readily defined.
 - f. Investigate reports of equipment failures or unsatisfactory performance for problems that have been generally localized and there are usually precedents for solving them.
 - g. Technical evaluation of data required by contract.
 - h. Plan and carry out assignments, select those precedents and practices most applicable to the particular technical conditions involved.
 - i. Demonstrate sound judgment in noncontroversial matters with technical personnel who represent contractors and others in fact gathering and review roles.

SKILL LEVEL FOR PROMOTION TO GS-11

1. Prior to promotion, the trainee will be able to:
 - a. Interface with diverse engineering concepts and procedures.
 - b. Carry out a wide range of technical studies.
 - c. Make significant adaptations of Air Force manuals, standards, and procedures for application to their assignments.
 - d. Apply knowledge of related disciplines and normally deal with specialists in them, e.g., reliability and maintainability, system safety, test, and evaluation.
 - e. Adequately define a problem and assess several alternatives prior to determining the course of action. This may involve a corrective measure of recommending a system or design approach.
2. For example, the trainee will be able to:
 - a. Perform evaluations of existing systems when new requirements or changed requirements are imposed.
 - b. Conduct a variety of investigations and analyses relating to site selection and systems integration, in connection with installation of systems facilities or in aircraft.
 - c. Evaluate manufacturers' data packages for devices or components that do not conform to established design and testing specifications for such items.

SKILL LEVEL FOR PROMOTION TO GS-12

1. Prior to promotion, the trainee will be able to:

a. Apply comprehensive and diversified knowledge to a typical or highly difficult assignment, in a subject-matter or functional area, e.g., unusual problems that arise during the rework of major systems for which they have technical responsibility.

b. Comprehend fully the relationships between their assigned tasks and the assigned tasks of all the technical disciplines represented in a SPO.

c. Perform preliminary technical analyses on large and complicated projects.

d. Evaluate on-going research and developmental activities and technological advances in order to consider them in their task assignments.

e. In some cases, coordinate and direct the work of other technical personnel in the accomplishment of portions of broad tasks.

f. Accomplish studies in which they thoroughly evaluate the various alternatives for meeting an objective, with adequate consideration of peripheral as well as technical factors, recommend the best one.

2. For example, the trainee will be able to:

a. Evaluate the technical aspects for the latest, state-of-the-art equipment which will be integrated into systems.

b. Review and/or develop installation instructions for test of prototype systems under operational conditions or an initial installation which is to set the standard for similar installation Air Force wide.

c. Evaluate manufacturers' data, specifications, and drawings for novel devices or components, prototype or major innovations that are proposed for addition to or removal from Air Force equipment or standard parts list.

Appendix E
PROMOTION PROCEDURE

A. Trainees are eligible for promotion after completing 12 months in grade. The supervisor has the authority and responsibility to recommend approval for a trainee's promotion. If for some reason he cannot recommend a promotion, he or she must send a letter of explanation to ESD's Chief Engineer 10 weeks prior to the trainee's eligibility date.

B. Two forms must be initiated by the supervisor for promotion. First, an AFSC Form 164 must be prepared by the supervisor and sent to ABGp/DPCT 7 to 8 weeks before the eligibility date. ABGp/DPCT will complete their portion and send it to ABGp/DPCS. Second, an ESD Form 107 must be prepared 5 to 6 weeks prior to the eligibility date. The supervisor will sign it and then forward it to the three-letter and the two-letter chiefs for their signature. The 107 will then be forwarded to ESD/ALE, where the required paperwork will be prepared and processed to ABGp/DPC for completion of the promotion.

END

FILMED

1-85

DTIC